

Substitute for Form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY
APPLICANT

(Use as many sheets as necessary)

Application Number: 10/644,410

Filing Date: August 20, 2003

First Named Inventor: Short

Docket Number: D1460-32US

Examiner Name

Art Unit To Be Assigned

Mailing Date: October 12, 2005

U.S. PATENT DOCUMENTS

Examiner Initials	Cite No. ¹	Publication Date (MM-DD-YYYY)	Document No. Number-Kind Code ² (if known)	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
ADS	1.	09/90	4,959,312	Sirotkin	
	2.	06/91	5,023,171	Ho et al.	
	3.	03/92	5,096,815	Ladner et al.	
	4.	03/93	5,198,346	Ladner et al.	
	5.	06/93	5,223,409	Ladner et al.	
	6.	01/94	5,279,952	Wu	
	7.	02/95	5,389,537	Raines et al.	
	8.	03/96	5,498,531	Jarrell	
	9.	08/97	5,658,727	Barbas et al.	
	10.	06/98	5,759,817	Barbas	
	11.	08/98	5,789,166	Bauer et al.	
	12.	10/98	5,824,485	Thompson et al.	
	13.	02/99	5,866,363	Pieczenik	
	14.	03/99	5,885,577	Alvarez	
	15.	03/99	5,885,827	Wabl et al.	
	16.	08/99	5,932,419	Bauer et al.	
	17.	08/99	5,945,329	Breddam et al.	
	18.	08/00	6,096,548	Stemmer	
	19.	09/00	6,117,679	Stemmer	
	20.	12/00	6,165,793	Stemmer	
	21.	01/01	6,180,406	Stemmer	
	22.	08/01	6,277,638	Stemmer	
	23.	09/01	6,291,158	Winter et al.	
	24.	11/01	6,319,714	Crameri et al.	

EXAMINER:

DATE CONSIDERED:

1-17-06

EXAMINER: Initial if citation considered, whether or not the citation conforms with MPEP 609. Draw a line through the citation if not in conformance and not considered. Include a copy of this form with next communication to applicant. ¹Applicant's unique citation number (optional). ²See Kind Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶Applicant is to place a check mark here if English language Translation is attached.

SEND COMPLETED FORM TO: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

Substitute for Form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(Use as many sheets as necessary)</i>	Application Number: 10/644,410	Filing Date: August 20, 2003
	First Named Inventor: Short	
	Docket Number: D1460-32US	
	Examiner Name	Art Unit To Be Assigned
Mailing Date: October 12, 2005		

NOS	25.	11/01	6,323,030	Stemmer	
	26.	01/02	6,335,160	Patten et al.	
	27.	01/02	6,337,186	Krebber	
	28.	02/02	6,344,356	Stemmer	
	29.	04/02	6,365,408	Stemmer	
	30.	04/02	6,368,861	Crameri et al.	
	31.	04/02	6,372,497	Stemmer	
	32.	04/02	6,376,246	Crameri et al.	
	33.	05/02	6,387,702	Stemmer	
	34.	05/03	6,562,594	Short	
	35.	11/01	2001/0039014	Bass	

FOREIGN PATENT DOCUMENTS

Examiner Initials	Cite ¹ No.	Publication Date (MM-DD-YYYY)	Document No. Country Code ³ - Number ⁴ -Kind Code ⁵ (if known)	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶
	36.	09/95	AU703264			
	37.	10/98	AU724698			
	38.	10/97	AU729505			
	39.	06/98	AU732146			
NOS	40.	05/89	EP0316018			
	41.	07/91	EP0439182			
	42.	07/93	EP0552266			
	43.	05/94	EP0596918			
	44.	01/95	EP0633944			
	45.	09/01	EP0876509			
	46.	04/99	EP0911396			
	47.	12/99	EP0963434			

EXAMINER:

DATE CONSIDERED:

EXAMINER: Initial if citation considered, whether or not the citation conforms with MPEP 609. Draw a line through the citation if not in conformance and not considered. Include a copy of this form with next communication to applicant. ¹Applicant's unique citation number (optional). ²See Kind Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶Applicant is to place a check mark here if English language Translation is attached.

SEND COMPLETED FORM TO: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

Substitute for Form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(Use as many sheets as necessary)</i>	Application Number: 10/644,410	Filing Date: August 20, 2003
	First Named Inventor: Short	
	Docket Number: D1460-32US	
	Examiner Name	Art Unit To Be Assigned
Mailing Date: October 12, 2005		

	48.	04/01	EP1094108		
	49.	05/01	EP1103606		
	50.	06/01	EP1108781		
	51.	06/01	EP1108783		
	52.	09/01	EP1130093		
	53.	10/01	EP1138763		
	54.	10/01	EP1149904		
	55.	10/01	EP1149905		
	56.	05/89	EP316018		
	57.	03/90	WO90/02809		
ADS	58.	08/91	WO91/12341		
	59.	04/92	WO92/07075		
	60.	02/93	WO93/03183		
	61.	06/94	WO94/13804		
	62.	07/95	WO95/20039		
	63.	08/95	WO95/22625		
	64.	02/96	WO96/06188		
	65.	03/96	WO96/09411		
	66.	12/96	WO96/41865		
	67.	02/97	WO97/07205		
ADS	68.	06/97	WO97/20078		
	69.	06/97	WO97/20950		
	70.	10/97	WO97/35966		
	71.	04/98	WO98/13485		
	72.	06/98	WO98/27230		
ADS	73.	09/98	WO98/38297		
	74.	10/98	WO98/45331		
	75.	10/98	WO98/48024		

EXAMINER: <i>[Signature]</i>	DATE CONSIDERED: 1-17-06
------------------------------	--------------------------

EXAMINER: Initial if citation considered, whether or not the citation conforms with MPEP 609. Draw a line through the citation if not in conformance and not considered. Include a copy of this form with next communication to applicant. ¹Applicant's unique citation number (optional). ²See Kind Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶Applicant is to place a check mark here if English language Translation is attached.

SEND COMPLETED FORM TO: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

Substitute for Form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(Use as many sheets as necessary)</i>	Application Number: 10/644,410	Filing Date: August 20, 2003
	First Named Inventor: Short	
	Docket Number: D1460-32US	
	Examiner Name	Art Unit To Be Assigned
	Mailing Date: October 12, 2005	

	76.	11/98	WO98/49286	no copy	
AOS	77.	12/98	WO98/58080		
	78.	07/99	WO99/36553		
	79.	07/00	WO00/42560		
	80.	07/00	WO00/42561		
	81.	10/00	WO00/61740		
	82.	01/01	WO01/00234		
	83.	04/01	WO01/23401		
	84.	05/01	WO01/32712		
	85.	06/01	WO01/46476		
	86.	09/01	WO01/70947		
	87.	10/01	WO01/73000		
	88.	10/01	WO01/75767		
	89.	05/01	WO1103606		

NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Cite ¹ No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, volume-issue number(s), page(s), publisher, city and/or country where published.	T ⁶
AOS	90.	Airaksinen, Antero, et al. "Modified base compositions at degenerate positions of a mutagenic oligonucleotide enhance randomness in site-saturation mutagenesis." Nucleic Acids Research (1998), 26(2), 576-581.	
	91.	Andreas Cramer et al., "Combinatorial Multiple Cassette Mutagenesis Creates All the Permutations of Mutant and Wild-Type Sequences," BioTechniques, vol. 18, No. 2, pp. 194-196 (1995). no copy	
	92.	Arkin and Youvan, "Optimizing nucleotide mixtures to encode specific subsets of amino acids for semi-random mutagenesis," Bio/technology (NY) 10(3):297-300 (Mar. 1992). no copy	
	93.	Arnold F. H. and Moore J.C. Optimizing industrial enzymes by directed evolution. Advances in Biochemical Engineering Biotechnology. 1997;58:1-14, Review. no copy	
	94.	Arnold F. H. When blind is better: protein design by evolution. Nature Biotechnology. Jul. 16, 1998:617-618. no copy	

EXAMINER:

DATE CONSIDERED:

1-17-06

EXAMINER: Initial if citation considered, whether or not the citation conforms with MPEP 609. Draw a line through the citation if not in conformance and not considered. Include a copy of this form with next communication to applicant. ¹Applicant's unique citation number (optional). ²See Kind Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶Applicant is to place a check mark here if English language Translation is attached.

SEND COMPLETED FORM TO: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

Substitute for Form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(Use as many sheets as necessary)</i>	Application Number: 10/644,410	Filing Date: August 20, 2003
	First Named Inventor: Short	
	Docket Number: D1460-32US	
	Examiner Name	Art Unit To Be Assigned
	Mailing Date: October 12, 2005	

	95.	Arnold R. Oliphant et al., "An efficient method for generating proteins with altered enzymatic properties: Application to β -lactamase", Proc. Natl. Acad. Sci. USA, vol. 86, pp. 9094-9098 (Dec. 1989).	
	96.	Botstein, D. et al., "Strategies and Applications of in-vitro Mutagenesis", Science, Sep. 20, 1985, vol. 229, No. 4719.	
	97.	Burks et al., "In vitro scanning saturation mutagenesis of an antibody binding pocket," Proc Natl Acad Sci USA 94(2):412-417 (Jan. 21, 1997).	
	98.	Campbell R. K. et al. Assembly and expression of a synthetic gene encoding the bovine glycoprotein hormone alpha-subunit. Molecular and Cellular Endocrinology. 1992;83:195-200.	
	99.	Chen and Struhl, "Saturation mutagenesis of a yeast his3 "TATA element": genetic evidence for a specific TATA-binding protein," Proc Natl Acad Sci USA 85(8):2691-2695 (Apr. 1988).	
MS	100.	Chen, G., et al. "In vitro scanning saturation mutagenesis of all the specificity determining residues in an antibody binding site." Protein Engineering 12(4):349-356 (1999)	
	101.	Chiang et al., "Mutagenic oligonucleotide-directed PCR amplification (Mod-PCR): an efficient method for generating random base substitution mutations in a DNA sequence element," PCR Methods Appl 2(3):210-217 (Feb. 1993).	
	102.	Christian et al., "Simplified methods for construction, assessment and rapid screening of peptide libraries in bacteriophage," J Mol Biol 227(3):711-718 (Oct. 5, 1992).	
	103.	Claekson T., et al. Making antibody fragments using phage display libraries. Nature. Aug. 15, 1991 352(6336):624-628.	
MS	104.	Climie, S. et al. Saturation Site-directed Mutagenesis of Thymidylate Synthase. THE Journal of Biological Chemistry 265(31):18776-18779. Nov. 5, 1990.	
	105.	Clyde A. Hutchison et al., "Mutagenesis at a Specific Position in a DNA Sequence", The Journal of Biological Chemistry, vol. 253, No. 18, pp. 6551-6560 (Sep. 25, 1978).	
	106.	Cohen J. How DNA shuffling works. Science. Ju. 13, 2001;293(5528):237.	
	107.	Cramer A., et al. Construction and evolution of antibody-phage libraries by DNA shuffling. Nature Medicine. 2(1):100-102 (Jan. 1996).	
	108.	Cramer A., et al. DNA shuffling of a family of genes from diverse species accelerates directed evolution. Nature. Jan. 15, 1998;391(6664):288-291.	
	109.	Cramer A., et al. Improved green fluorescent protein by molecular evolution using DNA shuffling. Nature Biotechnology. Mar. 1996;14(3):315-319.	
	110.	Cramer A., et al. Molecular evolution of an arsenate detoxification pathway by DNA shuffling. Nature Biotechnology. May 15, 1997(5):436-438.	
	111.	Cunniff and Morgan, "Analysis of heat shock element recognition by saturation mutagenesis of the human HSP70.1 gene promoter," J Biol Chem 268(11):8317-8324	

EXAMINER:

DATE CONSIDERED:

1-17-06

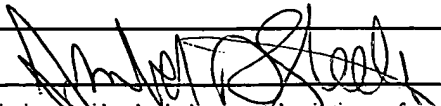
EXAMINER: Initial if citation considered, whether or not the citation conforms with MPEP 609. Draw a line through the citation if not in conformance and not considered. Include a copy of this form with next communication to applicant. ¹Applicant's unique citation number (optional). ²See Kind Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶Applicant is to place a check mark here if English language Translation is attached.

SEND COMPLETED FORM TO: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

Substitute for Form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)	Application Number: 10/644,410	Filing Date: August 20, 2003
	First Named Inventor: Short	
	Docket Number: D1460-32US	
	Examiner Name	Art Unit To Be Assigned
	Mailing Date: October 12, 2005	

	(Apr. 15, 1993).	
112.	Cwirla, Steven E. et al., "Peptides on phage: A vast library of peptides for identifying ligands", Proc. Natl. Acad. Sci. USA, vol. 87, pp. 6378-6382, (Aug. 1990).	
113.	Dennis and Lazarus, "Kunitz domain inhibitors of tissue factor-factor VIIa. I. Potent inhibitors selected from libraries by phage display," J Biol Chem 269(35):22129-22136 (Sep. 2, 1994).	
114.	Derbyshire et al., "A simple and efficient procedure for saturation mutagenesis using mixed oligodeoxynucleotides," Gene 46(2-3):145-152 (1986).	
115.	Goff et al., "Efficient saturation mutagenesis of a pentapeptide coding sequence using mixed oligonucleotides," DNA 6(4):381-388 (Aug. 1987).	
116.	Gram H., et al. In vitro selection and affinity maturation of antibodies from a naive combinatorial immunoglobulin library. Proc. National. Acad. Sci. 89(8):3576-80, (Apr. 1992).	
117.	Griffiths A. D., et al. Isolation of high affinity human antibodies directly from large synthetic repertoires. EMBO Journal. 1994, 13: 3245-3260.	
118.	Harlow P. H., et al. Construction of linker-scanning mutation using the polymerase chain reaction. Methods in Molecular Biology. 31:87-96 (1994).	
119.	Hayden M.A. and Mandecki W. Gene synthesis by serial cloning of oligonucleotides. DNA. Oct. 1988; 7(8):571-7.	
120.	Higuchi R., et al. A general method of in vitro preparation and specific mutagenesis of DNA fragments: study of protein and DNA interactions. Nucleic Acids Res 16(15):7351-67 (Aug., 1988).	
121.	Hill, D.E. et al., "Mutagenesis with Degenerate Oligonucleotides: An Efficient Method for Saturating a Defined DNA Region with Base Pair Substitutions", Methods in Enzymology, vol. 155, pp. 558-569 (1987).	
122.	Ho S.N., et al. DNA and Protein Engineering Using the Polymerase Chain Reaction. DNA Protein Engineering Techniques 2(2):50-55, (1990).	
123.	Ho S.N., et al. Site-directed mutagenesis by overlap extension using the polymerase chain reaction. Gene 77:51-59, (Apr., 1989).	
124.	Horwitz and DiMaio, "Saturation mutagenesis using mixed oligonucleotides and M13 templates containing uracil," Methods Enzymol 185:599-611 (1990).	
125.	Houghten, Richard A. "General Method for the Rapid Solid-Phase Synthesis of Large Numbers of Peptides: Specificity of Antigen-Antibody Interaction at the Level of Individual Amino Acids", Proc. Natl. Acad. Sci. USA, vol. 82, pp. 5131-5135 (Aug. 1985).	
126.	Ihara et al., "Requirement of the Pro-Cys-His-Arg sequence for O ⁶ -methylguanine-DNA methyltransferase activity revealed by saturation mutagenesis with negative and positive screening," Mol Gen Genet 243(4):379-389 (May 25, 1994).	

10
6605

EXAMINER: 	DATE CONSIDERED: 1-17-06
---	--------------------------

EXAMINER: Initial if citation considered, whether or not the citation conforms with MPEP 609. Draw a line through the citation if not in conformance and not considered. Include a copy of this form with next communication to applicant. ¹Applicant's unique citation number (optional). ²See Kind Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶Applicant is to place a check mark here if English language Translation is attached.

SEND COMPLETED FORM TO: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

Substitute for Form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)	Application Number: 10/644,410	Filing Date: August 20, 2003
	First Named Inventor: Short	
	Docket Number: D1460-32US	
	Examiner Name	Art Unit To Be Assigned
	Mailing Date: October 12, 2005	

	127.	Imamura T., et al. Identification of the domain within fibroblast growth factor-1 responsible for heparin-dependence. <i>Biochimica et Biophysica Acta</i> . Apr. 28, 1995;1266(2):124-30. <i>no copy</i>	
<i>MS</i>	128.	Jenkins, B.J., et al. Saturation mutagenesis of the β subunit of the human granulocyte-macrophage colony-stimulating factor receptor shows clustering of constitutive mutations, activation of ERK MAP kinase and STAT pathways, and differential β subunit tyrosine phosphorylation. <i>Blood</i> 92(6):1989-2002 (September 15, 1998)	
	129.	Joyce G.F. Directed molecular evolution. <i>Scientific America</i> . 267(6):90-7, (Dec, 1992).	
	130.	Levichklin, et al. A new approach to construction of hybrid genes: homolog recombination method. <i>Molecular Biology</i> : 29(5):572-577 (Jul.-Aug. 1995).	
	131.	Little, J.W. "Saturation mutagenesis of specific codons: elimination of molecules with stop codons from mixed pools of DNA," <i>Gene</i> 88(1):113-115 (Mar. 30, 1990).	
	132.	Matteucci, M.D. et al., "Targeted random mutagenesis: the use of ambiguously oligonucleotides to mutagenize sequences immediately 5' of an ATG initiation codon", <i>Nucleic Acids Research</i> , vol. 11, pp. 3113-3121 (Nov. 10, 1983).	
	133.	McNeil, J.B. et al., "Saccharomyces cerevisiae CYC1 mRNA 5'-End Positioning: Analysis by In Vitro Mutagenesis, Using Synthetic Duplexes with Random Mismatch Base Pairs," <i>Molecular and Cellular Biology</i> , vol. 5, No. 12, pp. 3545-3551 (Dec. 1985).	
	134.	Melnikov A. and Youngman P.J. Random mutagenesis by recombinational capture of PCR products in <i>Bacillus subtilis</i> and <i>Acinetobacter Calcoaceticus</i> . <i>Nucleic Acids Res.</i> Feb. 15, 1999;27(4):1056-62.	
	135.	Milkman, Roger et al., "Clustered Third-Base Substitutions Among Wild Strains of <i>Escherichia coli</i> ," <i>Science</i> , vol. 221, pp. 378-380 (Jul. 22, 1983).	
	136.	Morris and McIvor, "Saturation mutagenesis at dihydrofolate reductase codons 22 and 31. A variety of amino acid substitutions conferring methotrexate resistance," <i>Biochem Pharmacol</i> 47(7):1207-1220 (Mar. 29, 1994).	
	137.	Murray, Richard et al., "Saturation mutagenesis of a major histocompatibility complex protein domain: Identification of a single conserved amino acid important for allorecognition", <i>Proc. Natl. Acad. Sci. USA</i> , vol. 85, pp. 3535-3539 (May 1988).	
	138.	Murray, Richard et al., Random oligonucleotide mutagenesis: application to a large protein coding sequence of a major histocompatibility complex class I gene, H-2DP, <i>Nucleic Acids Research</i> , vol. 16, No. 20, pp. 9761-9773 (1988).	
	139.	Myers, R.M. et al., "A General Method for Saturation Mutagenesis of Cloned DNA Fragments", <i>Science</i> , vol. 229, pp. 242-247 (Jul. 19, 1985).	
<i>MS</i>	140.	O'Donohue, M.J., and G. Geoff Kneale. A method for introducing site-specific mutations using oligonucleotide primers and its application to site-saturation mutagenesis. <i>Molecular Biotechnology</i> 6:179-89. 1996.	

EXAMINER:

DATE CONSIDERED:

1-17-06

EXAMINER: Initial if citation considered, whether or not the citation conforms with MPEP 609. Draw a line through the citation if not in conformance and not considered. Include a copy of this form with next communication to applicant. ¹Applicant's unique citation number (optional). ²See Kind Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶Applicant is to place a check mark here if English language Translation is attached.

SEND COMPLETED FORM TO: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

Substitute for Form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)	Application Number: 10/644,410	Filing Date: August 20, 2003
	First Named Inventor: Short	
	Docket Number: D1460-32US	
	Examiner Name	Art Unit To Be Assigned
	Mailing Date: October 12, 2005	

141.	Olesen and Kielland-Brandt, "Altering substrate preference of carboxypeptidase Y by a novel strategy of mutagenesis eliminating wild type background," Protein Eng 6(4):409-415 (Jun. 1993).	
142.	Olins et al., "Saturation mutagenesis of human interleukin-3," J Biol Chem 270(40):23754-23760 (Oct. 6, 1995).	
143.	Oliphant et al., "Cloning of random-sequence oligodeoxynucleotides," Gene 44(2-3):177-183 (1986).	
144.	Osuna et al., "Combinatorial mutagenesis of three major groove-contacting residues of EcoRI: single and double amino acid replacements retaining methyltransferase-sensitive activities," 106(1):7-12 (Sep. 30, 1991).	
145.	Pompon D. and Nicolas A. Protein engineering by cDNA recombination in yeasts: Shuffling of mammalian cytochrome p450 functions. Gene 83(1):15-24 (Nov., 1989).	
146.	Punnonen J. Molecular breeding of allergy vaccines and antiallergic cytokines. Int Arch Allergy Immunol. Mar. 2000;121(3):173-82, Review.	
147.	Raillard S., et al. Novel enzyme activities and functional plasticity revealed by recombining highly homologous enzymes. Chemistry Biology. 2001 Sep.;8(9):891-898.	
148.	Reidhaar-Olson et al., "Random mutagenesis of protein sequences using oligonucleotide cassettes," Methods Enzymol 208:564-586 (1991).	
149.	Roberts et al., "Directed evolution of a protein: selection of potent neutrophil elastase inhibitors displayed on M13 fusion phage," Proc Natl Acad Sci USA 89(6):2429-2433 (Mar. 15, 1992).	
150.	Saiki, R.K., et al. Enzymatic amplification of β -globin genomic sequences and restriction site analysis for diagnosis of sickle cell anemia. Science 230(4732):1350-1354, (Dec. 1985).	
151.	Schultz, S.C., and J.H. Richards. Site-saturated studies of β -lactamase: production and characterization of mutant β -lactamases with all possible amino acid substitutions at residue 71. Proc Natl Acad Sci USA 83:1588-92. March 1986.	
152.	Shao, Z., et al. Random-priming in vitro recombination: an effective tool for directed evolution. Nucleic Acids Res. Jan. 15, 1998; 26(2):681-3.	
153.	Sherman et al., "Saturation mutagenesis of the plasminogen activator inhibitor-1 reactive center," J Biol Chem 267(11):7588-7595 (Apr. 15, 1992).	
154.	Shortle, David et al., "Gap misrepair mutagenesis: Efficient site-directed induction of transition, transversion, and frameshift mutations in vitro", Proc. Natl. Acad. Sci. USA, vol. 79, pp. 1588-1592, (Mar. 1982).	
155.	Sikorski R.S. and Boeke J.D. In vitro mutagenesis and plasmid shuffling: from cloned gene to mutant yeast. Methods Enzymol. 194:302-318 (1991).	

EXAMINER:

DATE CONSIDERED:

1-17-06

EXAMINER: Initial if citation considered, whether or not the citation conforms with MPEP 609. Draw a line through the citation if not in conformance and not considered. Include a copy of this form with next communication to applicant. ¹Applicant's unique citation number (optional). ²See Kind Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶Applicant is to place a check mark here if English language Translation is attached.

SEND COMPLETED FORM TO: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

Substitute for Form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(Use as many sheets as necessary)</i>	Application Number: 10/644,410	Filing Date: August 20, 2003
	First Named Inventor: Short	
	Docket Number: D1460-32US	
	Examiner Name	Art Unit To Be Assigned
	Mailing Date: October 12, 2005	

156.	Singh et al., "Saturation mutagenesis of the octopine synthase enhancer: correlation of mutant phenotypes with binding of a nuclear protein factor," Proc Natl Acad Sci USA 86(10):3733-3737 (May 1989).	
157.	Sirotkin, K. "Advantages to mutagenesis techniques generating populations containing the complete spectrum of single codon changes," J Theor Biol 123(3):261-279 (Dec. 7, 1986).	
158.	Sirotkin, K. "A computer program to display codon changes caused by mutagenesis," Comput Appl Biosci 4(2):243-247 (Apr. 1988).	
159.	Smith, Michael "In Vitro Mutagenesis", Ann. Rev. Genet., 19:423-62 (1985).	
160.	Soteropoulos and Perlin, "Genetic probing of the stalk segments associated with M2 and M3 of the plasma membrane H ⁺ -ATPase from Saccharomyces cerevisiae," J Biol Chem 273(41):26426-26431 (Oct. 9, 1998).	
161.	Soteropoulos et al., "Molecular genetic probing of energy coupling by the yeast plasma membrane proton pump," Acta Physiol Scand 643:115-122 (Aug. 1998).	
162.	Stemmer W.P., et al. Single-step assembly of a gene and entire plasmid from large numbers of oligodeoxyribonucleotides, Gene. Oct. 16, 1995; 164(1):49-53.	
163.	Tsiang et al., "Protein engineering tyrombin for optimal specificity and potency of anticoagulant activity in vivo," Biochemistry 35(51):16449-16457 (Dec. 24, 1996).	
164.	Warren et al., "A rapid screen of active site mutants in glycylamide ribonucleotide transformylase," Biochemistry 35(27):8855-8862 (Jul. 9, 1996).	
165.	Weber H. and Weissmann C. Formation of genes coding for hybrid proteins by recombination between related, cloned genes in E.coli. Nucleic Acids Res. 11(16):5661-69 (Aug. 1983).	
166.	Weiner et al., "A method for the site-directed mono- and multi-mutagenesis of double-stranded DNA," Gene 126(1):35-41 (Apr. 15, 1993).	
167.	Wells, J.A. et al., "Cassette mutagenesis: an efficient method for generation of multiple mutations at defined sites", Gene, 34, 315-323 (1985).	
168.	White et al., "Improved thermostability of the North American firefly luciferase: saturation mutagenesis at position 354," Biochem J 319 (Pt 2):343-350 (Oct. 15, 1996).	
169.	Yelton et al., "Affinity maturation of the BR96 anti-carcinoma antibody by codon-based mutagenesis," J Immunol 155(4):1994-2004 (Aug. 15, 1995).	
170.	Zakour, Richard A. et al., "Site-specific mutagenesis by error-directed DNA synthesis", Nature, vol. 295, pp. 708-710 (Feb. 25, 1982).	
171.	Zhang J.H., et al. Directed evolution of a fucosidase from a galactosidase by DNA shuffling and screening. Proc National Academy Science U.S.A. Apr. 29, 1997;94(9):4504-9.	
172.	Zilliaceus et al., "Evolution of distinct DNA-binding specificities within the nuclear	

EXAMINER:

DATE CONSIDERED:

1-17-06

EXAMINER: Initial if citation considered, whether or not the citation conforms with MPEP 609. Draw a line through the citation if not in conformance and not considered. Include a copy of this form with next communication to applicant. ¹Applicant's unique citation number (optional). ²See Kind Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶Applicant is to place a check mark here if English language Translation is attached.

SEND COMPLETED FORM TO: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

Substitute for Form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)	Application Number: 10/644,410	Filing Date: August 20, 2003
	First Named Inventor: Short	
	Docket Number: D1460-32US	
	Examiner Name	Art Unit To Be Assigned
Mailing Date: October 12, 2005		

	receptor family of transcription factors," Proc Natl Acad Sci USA 91(10):4175-4179 (May 10, 1994).	
173.	Zoller M.J. New recombinant DNA methodology for protein engineering. Current Opinion Biotechnology 1992. 3(4):348-54. Review. <i>no copy</i>	

EXAMINER:

DATE CONSIDERED:

1-17-06

EXAMINER: Initial if citation considered, whether or not the citation conforms with MPEP 609. Draw a line through the citation if not in conformance and not considered. Include a copy of this form with next communication to applicant. ¹Applicant's unique citation number (optional). ²See Kind Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶Applicant is to place a check mark here if English language Translation is attached.

SEND COMPLETED FORM TO: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450